



Final Program

2024 IERE-SwRI San Antonio Energy Transition Workshop

Enabling Technologies for the Energy Transition

In-Person Event



Downtown San Antonio, Texas, US

San Antonio, Texas, US

May 13–16, 2024

Organized by IERE and SwRI



Enabling Technologies for the Energy Transition

About the theme

The world is seeking various technological pathways to support the decarbonization of the electricity, mobility, and industrial sectors. These technologies span power generation, energy transport, and storage applications with multiple objectives to maintain low costs and high reliability and resiliency of a decarbonized energy system. Due to this diversity of applications, objectives, energy resources, and sociopolitical constraints across the globe, the “best” technology combination is also expected to vary for each situation. This workshop therefore addresses a broad range of enabling technologies addressing themes of advanced power cycles, energy transport, cross-cutting decarbonization technologies with non-power generation industries, and resilience.

Who should attend?

The workshop is intended for experts actively involved in the selected themes, from IERE members and non-members, as well as all those interested in the evolution of the electrical power industry and the technology development and business development opportunities associated to this evolution. IERE and SwRI will invite prominent speakers for keynote speeches.



Schedule Outline:

Monday,	May 13, 2024	Welcome Reception
Tuesday,	May 14, 2024	2024 IERE-SwRI San Antonio Energy Transition Workshop Official Dinner
Wednesday,	May 15, 2024	2024 IERE-SwRI San Antonio Energy Transition Workshop
Thursday,	May 16, 2024	Technical Tour (Optional) Social Event (Optional) (Cancelled)

Program and Session Themes:

Session structure and speakers are subject to change according to the submission of contributions.

Opening Session:

Opening Address:	MINO Yoshiaki (IERE Chair)
Welcome Speech:	Walter D. DOWNING (Executive Vice President and COO, SwRI, US)
Keynote Speeches:	Mark G. LAUBY (Senior Vice President and Chief Engineer, NERC, US) Joshua SCHMITT (Assistant Program Manager, Machinery Department, SwRI, US) Benny ETHRIDGE (Chief Energy Supply Officer, CPS Energy, US) Neil KERN (Program Manager, Low-Carbon Resources Initiative, EPRI)

Technical Session 1: Advanced Power Cycles

Advanced Power Cycles include innovations in thermodynamic cycles for improving cost, performance, or carbon emissions of thermal power generation systems. Power cycle innovations are being developed for implementation across many heat sources, including fossil-fired, concentrating solar, geothermal, advanced nuclear, industrial waste heat, and decarbonized fuels. Advanced power cycles also include integration with multiple heat sources or power generation systems hybridized with heat or other shaft power uses.

Potential topics include:

- Low-carbon power generation

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- Combined heat and power or other hybrid systems
 - Carbon capture for power generation
 - Gas and steam turbine systems
 - Conversion to decarbonized fuels
 - Supercritical CO₂ power systems
 - Thermodynamic cycles for renewable generation
 - Cycle performance improvements
 - Novel applications

Technical Session 2: Energy Transport and Storage

Energy transport infrastructure and requirements are a strong economic driver that ultimately affects the cost and reliability of electricity. This infrastructure includes transport of energy (typically in chemical form) before conversion to electricity as well as the electrical transmission and distribution infrastructure connecting to end use. Transport of carbon dioxide for sequestration or utilization is also a necessary consideration for generation systems utilizing carbon capture. Finally, transport of energy is inherent in many mobility applications.

Near-term decarbonization of electricity is heavily based on the significant installation of variable renewable power generation from wind and solar resources, resulting in supply-demand mismatches and the need for peaker plants and large-scale energy storage to meet 24/7 demand. Energy storage requirements include short-term storage <10 hours, long-duration storage of 10+ hours to weeks, and even seasonal storage. These technologies may include electrochemical batteries or other thermal, mechanical, or chemical energy storage systems.

Potential topics include:

- Pipeline transport efficiency, reliability, and leak reduction
- Pipeline pumping and compression
- Fuel transport including LNG, hydrogen, ammonia
- Transport of hydrogen and hydrogen carriers
- Hydrogen carriers
- CO₂ transport
- Thermal energy transport
- Energy transport in mobility applications
- Energy storage technoeconomics and applications
- Grid batteries including flow batteries
- Pumped hydro energy storage
- Compressed air or liquid air energy storage
- Thermal energy storage
- Liquid air energy storage
- Hydrogen and e-fuels
- Hybrid energy storage + generation systems

Technical Session 3: Cross-Cutting Decarbonization Technologies

Many technologies for supporting the decarbonization of electricity generation have crossover applications for industrial applications including the manufacturing of petrochemical products, mineral and metals processing, cement, food and beverage, pulp and paper, and other industries. These systems incorporate high energy requirements, 24/7 operation, and high thermal needs that currently drive significant carbon emissions. Electrification of many industrial energy inputs will also drive unique power generation and energy storage/transport requirements.

In addition, in a modern “always-on” economy, a successful energy transition must meet consumer electricity demands with resilience in addition to reducing climate impacts. Resilience of the electric grid is closely related to yet distinct from its reliability. Reliability is about (reducing) the probability of a power interruption whereas resilience is about handling the interruption. Thus, resilience involves resistance to disruption as well as the ability to recover quickly and effectively. To enhance the resiliency of the power systems is a broad area, so a range of solutions can be proposed as Innovative and practical approaches.

Potential topics include:

- Carbon capture
- Onsite power generation for industry
- Decarbonized fuels for industry
- Industrial waste heat recovery
- Electrification of industrial heat
- Thermal storage
- Devices and technologies
- Control systems
- Communications and monitoring
- Integration approaches
- Rules of thumb and case studies
- Coupling of critical infrastructure
- Multi-entity interaction
- Methods to quantify and visualize cyber-physical metrics of resilience
- Data analytics and AI/ML to monitor and improve resilience

Panel Session:

Enabling Technologies for the Energy Transition

Special Session:

Report of IERE R&D Collaboration Project on Energy Storage

Closing Remarks



Technical Tour (Optional)

Visiting SwRI Research Facilities with Lunch

- STEP 10 MWe Pilot Plant Demonstrating a Supercritical Carbon Dioxide Brayton Cycle
- Hydrogen Storage and Large Hydrogen-Fueled Engine Research
- Solar Photovoltaic and Battery Energy Storage Facility
- Chemical Engineering Research Including CO₂ Utilization and Mineralization
- Turbomachinery Research Including Hydrogen and CO₂ Compression, Gas Turbine Combustion Research

* The maximum number of participants is 100**.

** This offer is on a first-come-first-served basis.

Social Event (Optional) (Cancelled)

Visiting San Antonio Missions (UNESCO World Heritage Site)

* The maximum number of participants is 100**.

** This offer is on a first-come-first-served basis.



Program

Session structure, speakers and timetable are subject to change.

Welcome Reception

Monday, May 13, 2024

Embassy Suites by Hilton San Antonio Riverwalk Downtown, Majestic A Foyer

17:30–	Registration
18:00–20:00	Welcome Reception

2024 IERE-SwRI San Antonio Energy Transition Workshop

- Workshop Day 1 -

Tuesday, May 14, 2024

Embassy Suites by Hilton San Antonio Riverwalk Downtown, Majestic A Ballroom

08:00–09:00	Registration
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Opening Session

09:00–09:10	O-1	Opening Address MINO Yoshiaki (IERE Chair)
09:10–09:20	O-2	Welcome Speech Walter D. DOWNING (Executive Vice President and COO, SwRI, US)

Plenary Session: Keynote Speeches

09:20–09:50	K-1	A Changing Risk Environment Requires Extraordinary Action A Bulk Power System Reliability Perspective Mark G. LAUBY (Senior Vice President and Chief Engineer, NERC, US)
09:50–10:20	K-2	A Roadmap to the Decarbonization of Electricity with a Microgrid Case Study Joshua SCHMITT (Assistant Program Manager, Machinery Department, SwRI, US)

10:20–10:50 Coffee Break

10:50–11:20 K-3 **Generation Plan Update: Perspectives and Opportunities in Long Duration Energy Storage**
Benny ETHRIDGE
(Chief Energy Supply Officer, CPS Energy, US)

11:20–11:50 K-4 **The Role and Impact of Low-Carbon Fuels in Decarbonization**
Neil KERN
(Program Manager, Low-Carbon Resources Initiative, EPRI, US)

Panel Session Enabling Technologies for the Energy Transition

11:50–12:30

Moderator:

Eric THOMPSON
(Program Manager, Machinery Department, SwRI, US)

Panelists:

Mark G. LAUBY
(Senior Vice President and Chief Engineer, NERC, US)

Joshua SCHMITT
(Assistant Program Manager, Machinery Department, SwRI, US)

Benny ETHRIDGE
(Chief Energy Supply Officer, CPS Energy, US)

Neil KERN
(Program Manager, Low-Carbon Resources Initiative, EPRI, US)

12:30–14:00 Lunch Break

Technical Session 1: Advanced Power Cycles (Part 1)

Chair Person: Francesco Di SABATINO
(Sr. Research Engineer, Propulsion & Energy Machinery, SwRI, US)

14:00–14:25 T1-1 **Application Update and Development Status of Supercritical Carbon Dioxide Power Cycles**
Joshua WARREN
(Senior Research Engineer, Mechanical Engineering, SwRI, US)

14:25–14:50 T1-2 **Development status of poly-generation system using various fuel with CO₂ capture**
HAMADA Hiroyuki
(Research Scientist, Energy Transformation Research Laboratory, CRIEPI, Japan)

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|-------------|------|---|
| 14:50–15:15 | T1-3 | Overview of the Development and Demonstration of a Pilot-Scale Pumped Thermal Energy Storage Facility
Joshua JUST
(Research Engineer, Rotating Machinery Dynamics, SwRI, US) |
| 15:15–15:40 | T1-4 | An Overview of Direct-Fired sCO₂ Power Cycles
Austin JONES
(Engineer, Machinery Department, SwRI, US) |
| 15:40–16:10 | | Coffee Break |

Technical Session 1: Advanced Power Cycles (Part 2)

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|---------------|------|--|
| Chair Person: | | NISHI Mina
(Senior Research Scientist, Energy Transformation Research Laboratory, CRIEPI, Japan) |
| 16:10–16:35 | T1-5 | Investigation of high-pressure CO₂-diluted methane/oxygen jet flame stabilization and laser-induced plasma kernel formation
Francesco Di SABATINO
(Sr. Research Engineer, Propulsion & Energy Machinery, SwRI, US) |
| 16:35–17:00 | T1-6 | Introduction of CCS Technology to Thermal Power Plants and Construction of a CCS Value Chain
NAKASUJI Ryuta
(Thermal Power Division, Kansai Electric Power Co., Inc., Japan) |
| 17:00–17:25 | T1-7 | Transitioning to a Carbon-Neutral Future: A Review of Low/Zero Carbon Fuel Combustion Research at Southwest Research Institute
Francesco Di SABATINO
(Sr. Research Engineer, Propulsion & Energy Machinery, SwRI, US) |
| 17:25–17:50 | T1-8 | A Pilot Project Rengit Diesel Power Plant Hydrogenization with Fuel Cell and Hydrogen Technology
Benny SUSANTO
(Senior Officer, Research and Assessment Power Plant, PLN Research Institute, PT PLN, Indonesia) |
| 19:00–21:00 | | Official Dinner at Majestic A, Embassy Suites by Hilton San Antonio Riverwalk Downtown |



**2024 IERE-SwRI San Antonio Energy Transition
Workshop**
- Workshop Day 2 -
Wednesday, May 15, 2024
Embassy Suites by Hilton San Antonio Riverwalk Downtown, Majestic A Ballroom

Special Session: Report of IERE R&D Collaboration Project

Chair Person: Jay FISHER
(Program Director, Mechanical Engineering, SwRI)

- 09:00–09:40 **Energy Storage Project**
Jayant SARLASHKAR
(Institute Engineer, Sustainable Energy and Mobility, SwRI, US)
- 09:40–10:10 Coffee Break

Technical Session 2: Energy Transport and Storage

Chair Person: Jay FISHER
(Program Director, Mechanical Engineering, SwRI)

- 10:10–10:35 T2-1 **Cost reduction of green hydrogen production by optimizing the capacity of electrolyzer**
NISHI Mina
(Senior Research Scientist, Energy Transformation Research Laboratory, CRIEPI, Japan)
- 10:35–11:00 T2-2 **Role of Small Modular reactor in De-carbonization of Indian Energy sector**
Sitesh BARCHE
(Senior Manager, CMD Sectt., NTPC, India)
- 11:00–11:25 T2-3 **Advancements in Thermal Energy Storage Systems: Paving the Way for a Sustainable Future**
Naoya MATSUDA
(Manager, Mechanical Engineering Group, Electric Power R&D Center, Chubu EPCO, Japan)
- 11:25–11:50 T2-4 **Hydrogen Blended Natural Gas Testing in a Compressor Loop**
Sarah SIMONS
(Senior Research Scientist, Mechanical Engineering, SwRI, US)



Closing Remarks

11:50–11:55	Jayant SARLASHKAR (Institute Engineer, Sustainable Energy and Mobility, SwRI, US)
11:55–12:00	TAKEI Katsuhito (Secretary General, IERE)
12:00–13:30	Lunch

Technical Visit (Optional)

Thursday, May 16, 2024
Visiting SwRI Research Facilities with Lunch

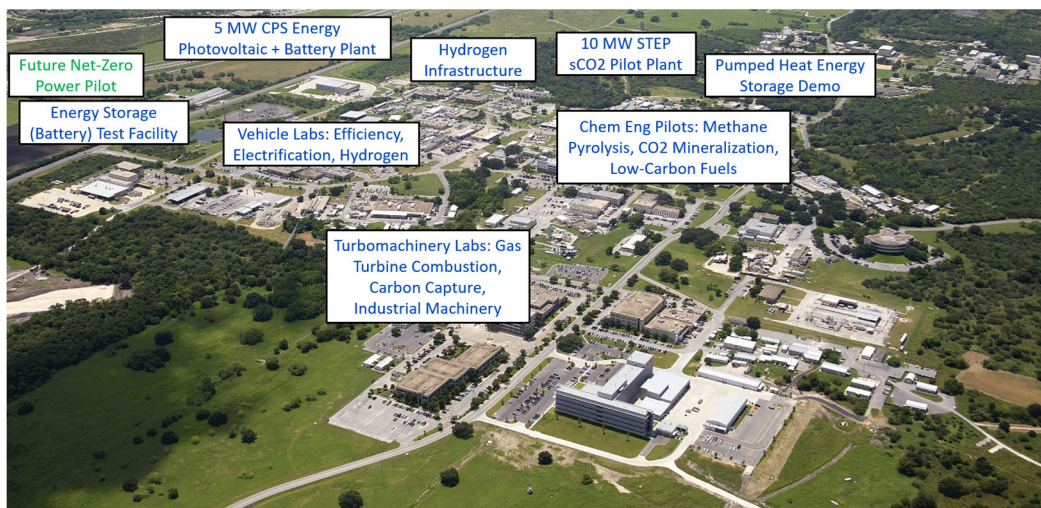
(For participants who have booked the optional Technical Visit)

- 09:00am Leave from Embassy Suites by Hilton San Antonio Riverwalk Downtown
 Bus Transfer & Site Entrance: 30 minutes
- 09:30am STEP 10 MWe Supercritical Carbon Dioxide Pilot Plant
- 10:00am Pumped Thermal Energy Storage Demonstration
- 10:20am Chemical Engineering Research Including CO₂ Utilization and Mineralization
- 10:45am Hydrogen Storage and Large Hydrogen-Fueled Engine Research
- 11:25am Solar Photovoltaic and Battery Energy Storage Facility
- 12:00pm Lunch at SwRI
- 12:35pm Leave for Embassy Suites
 Bus Transfer: 25 minutes
- 1:00pm Arrive at Embassy Suites
- ~~1:10pm Departure to Social Event (Cancelled)~~

- Tour order and timing subject to change.
- The maximum number of participants is up to 100.
- Please register with Workshop registration.
- Attendees should wear comfortable and appropriate shoes for walking.

Southwest Research Institute, San Antonio, Texas

SwRI is one of the oldest and largest independent non-profit applied research and development organizations in the United States, and has over 3000 employees operating with over two million square feet of lab space and testing facilities on-site in San Antonio. SwRI has a broad set of laboratories focused on energy-related technologies, including the 10 MWe STEP pilot plant, a turbomachinery laboratory for power cycle component development, a pumped thermal energy storage demonstration, battery test facilities, automotive powertrain test stands including hydrogen and battery electric vehicles, large-scale hydrogen storage, and chemical engineering laboratories for carbon capture and utilization technology development and hydrogen production.



Energy Research Facilities at Southwest Research Institute

Social Event (Optional) (Cancelled)

Thursday, May 16, 2024

Visiting San Antonio Missions (UNESCO World Heritage Site)

(For participants who have booked the optional Social Event)

Join us on May 16th, 2024, to tour four of the five San Antonio Missions! Attendees will be given approximately 30-45 minutes to freely tour each mission at their own pace. For additional information regarding each mission, please visit <https://www.visitsanantonio.com/things-to-do/san-antonio-missions/>.

1:10pm	Leave from Embassy Suites by Hilton San Antonio Riverwalk Downtown
1:20pm	Arrive at Mission San Antonio de Valero (the Alamo)
2:10pm	Board Bus to Leave the Alamo
2:25pm	Arrive at Mission Concepción
3:00pm	Board Bus to Leave Mission Concepción
3:15pm	Arrive at Mission San José
4:05pm	Board Bus to Leave Mission San José
4:20pm	Arrive at Mission San Juan Capistrano
4:55pm	Board Bus to Leave Mission San Juan Capistrano
5:20pm	Arrive at Embassy suites San Antonio Riverwalk

Mission San Antonio de Valero (the Alamo)

The Alamo, founded in 1718, was the first mission in San Antonio, serving as a way station between east Texas and Mexico. In 1836, decades after the mission had closed, the Alamo became an inspiration and a motivation for liberty during the Texas Revolution. Today, located on Alamo Plaza in downtown San Antonio, the Alamo houses exhibits on the Texas Revolution and Texas History. Visitors are invited to experience interactive history lessons, guided tours, and stroll through the beautiful Alamo Gardens. Just a short distance from the River Walk, the Alamo is a “must-see” for all who visit the Alamo City.

Mission Concepción

Dedicated in 1755, the church at Mission Nuestra Señora de la Purísima Concepción de Acuña remains true to its original design, look and feel. In fact, the church stands as the oldest unrestored stone church in the United States. Exterior paintings have faded, but if you peek inside, you can still see original frescos in some of the church rooms.

Mission San José

“Queen of the Missions.” Established in 1720, San José y San Miguel de Aguayo is the largest mission in San Antonio. Spanish designers built the mission using Texas limestone and brightly colored stucco. At its height, it provided sanctuary and a social and cultural community for more than 300 Indians. In 2011, it underwent a \$2.2 million renovation to refinish interior domes, walls, and the altar backdrop. When visiting the church, be sure to look for flying buttresses, carvings, quatrefoil patterns, polychromatic plaster, and the famed “Rose Window,” a superb example of Spanish Colonial ornamentation.

Mission San Juan Capistrano

Established in 1731, Mission San Juan’s fertile farmlands used to allow for a self-sustainable community, and its surplus helped supply the region with produce. Today, the chapel and bell tower are still in use. When visiting, don’t miss the typical Romanesque archway at the entrance gate. For outdoor fun, take a self-guided tour on the nature trail that begins at this mission and leads to the river.



<https://www.hotels.com/go/usa/famous-missions-san-antonio>

Call for Papers (Closed)

<<Abstract Submission: No later than March 31, 2024>>

You are kindly invited to submit abstracts for the Oral Session or Poster Session for the 2024 San Antonio Energy Transition Workshop by e-mail.

to: **register (at) iere.jp** [Please substitute “ (at) ” with “@”]

As for the **format of the abstract**, please refer to “Events” page on IERE website.

<https://www.iere.jp/events/workshop/2024-sanantonio/forspeakers.html>

- Change of presentation session (oral or poster) may be requested depending on the number of submitted abstracts.
- Abstract will be posted on the IERE website and open to the public.
- Presentation Slides will be posted the IERE website and open to IERE members and Workshop participants.
- The official language of the IERE Workshop is English.

<< Presentation Slides Submission: No later than April 30, 2024>>

You are kindly requested to submit presentation slides (PowerPoint) via E-mail.

- Presentation slides will be posted on the IERE website and opened to all participants before the Workshop.
- The official language of the IERE Workshop is English.

Also, you are kindly requested to submit Speaker’s Information via E-mail by April 30, 2024.

Note: Presentation Slides will be open to all participants of this workshop and IERE members on the IERE website. If you do not wish to have your presentation slides made public, please contact the IERE Central Office.



Registration

Total number of participants is limited to 100 persons.

If possible, please register using the method (a) below. If you are unable to use Google Forms due to limitations in your system environment or other reasons, please register using method (b) below.

(a) On-Line Registration (Google Forms)

URL: <https://forms.gle/hTTcjPBsa7Ya8LLS6>

or

(b) Submit a Registration Form (Format 1) to IERE Central Office via E-mail

Photos and videos taken by IERE at this Event will be used for publication on websites and/or in magazines. Therefore, at the time of your application of the registration, IERE deems you have granted IERE the right to use the above photos or videos.

Registration Fee

The Registration fee will cover attendance at both workshop days (include lunches & refreshments at coffee breaks), welcome reception on May 13, official dinner on May 14 and conference package:

IERE Members:	USD 1,000
Non-IERE Members:	USD 1,500
Academic Participants:	USD 1,000
Students:	USD 750

Recommended Options

Technical Visit (Optional) May 16 a.m.: Free of Charge

· To Be Determined

*The maximum number of participants is up to 100.

** This offer is on a first-come-first-served basis.

Social Event (Optional) May 16 p.m.: ~~USD 75~~ (Cancelled)

· To Be Determined

*The maximum number of participants is up to 100.

** This offer is on a first-come-first-served basis.

Payment

On-Line Credit Card Payment and Bank Transfer are available.
Deadline: May 7, 2024

(a) On-Line Credit Card Payment

URL: https://www.iere.jp/Payment/paypal_24WS.html

(b) Bank Transfer

Name of the Bank: MUFG Bank, Ltd.
Name of the Branch: Seijo branch
Name of the account: IERE
Account Number: 0068198
Bank address: 15-1 Seijo 6-chome, Setagaya-ku, Tokyo, 157-0066 JAPAN
SWIFT code:

VISA (Closed)

For participants from some countries needing a VISA to enter US, please check the below or consult with travel agent in your country for the details.

URL: <https://travel.state.gov/content/travel/en/us-visas.html>

If you need an Invitation Letter*, please send 'Invitation Letter for VISA Request Form' to IERE Central Office via E-mail by March 31, 2024.

* SwRI will be able to issue an invitation letter for participants who need to apply for Visa. It will take approximately 1-2 weeks for SwRI to prepare this after receiving all information, so please submit the form as soon as possible.

Disclaimer: SwRI reserves the right to fulfill or decline, at SwRI's discretion, requests for letters of invitation for visa application support purpose.

Submission Items & Deadlines

For Participants [including Speakers]

Items	Format No.	Deadline/ Limitation	To:
Registration Form	1	April 30, 2024 Limited to 100 Participants	register(at)iere.jp [Please substitute (at) with @]
Invitation Letter for VISA Request Form (If necessary)	2	March 31, 2024 (It takes 1-2 weeks to issue)	Ditto
Registration Fee	—	May 7, 2024 Limited to 100 Participants	Please refer to Page 8
Technical Visits Fee [optional]	—	Limited to 100 Participants	Ditto
Social Event Fee [optional]	—	Limited to 100 Participants	Ditto
Hotel accommodation reservations at special rates		April 28, 2024	Please refer to Page 14

The formats (No. 1 and 2) can be downloaded from IERE website.

URL: <https://www.iere.jp/events/workshop/2024-sanantonio/register.html>

For Speakers

Items	Format No.	Deadline	To:
Abstract	3	March 31, 2024	register(at)iere.jp [Please substitute (at) with @]
Speaker's Information	4	April 30, 2024	
Presentation Slides (PowerPoint File)	—	April 30, 2024	

The formats (No. 3 and 4) can be downloaded from IERE website.

URL: <https://www.iere.jp/events/workshop/2024-sanantonio/forspeakers.html>

Speakers are kindly requested to submit their Speaker's Information and Presentation Slides (PowerPoint File) by April 30, 2024.

Note: Presentation Slides will be open to all participants of this workshop and IERE members on the IERE website. If you do not wish to have your presentation slides made public, please contact the IERE Central Office.

Conference Venue & Accommodations

Conference Venue

Embassy Suites by Hilton San Antonio Riverwalk Downtown, Texas, US

Location: 125 E. Houston Street, San Antonio, Texas, 78205, USA

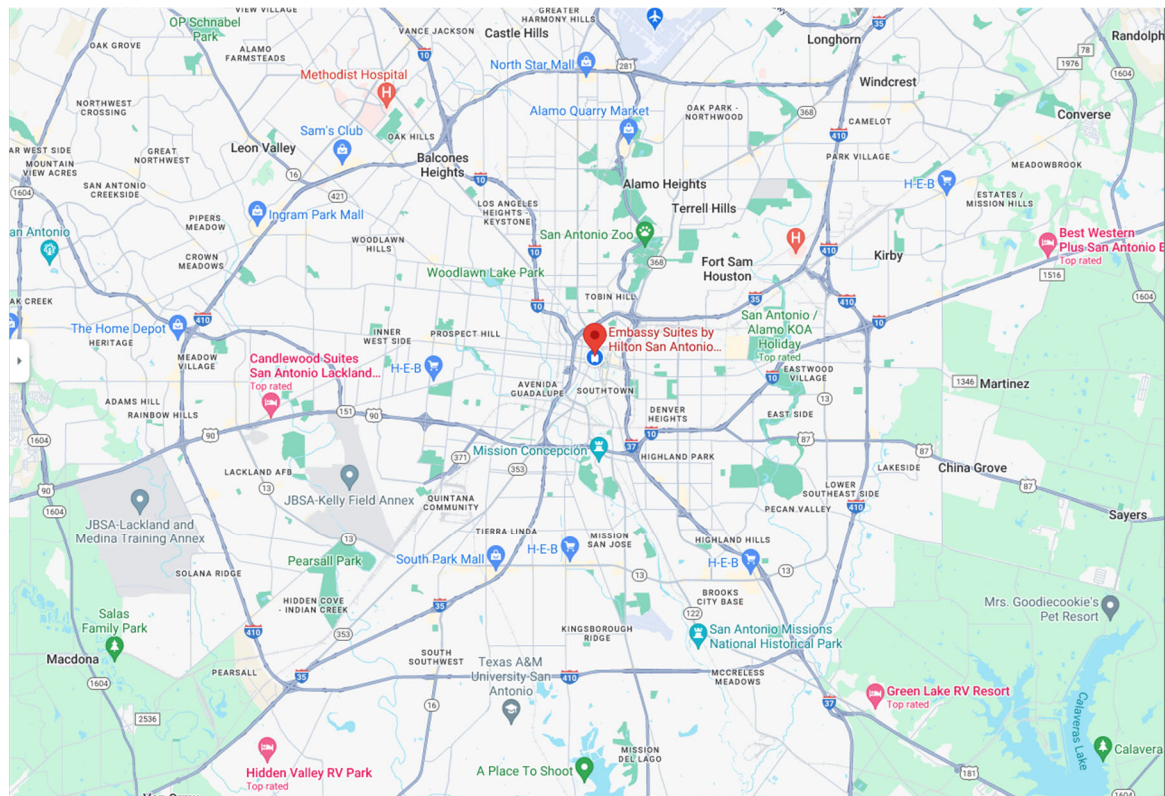
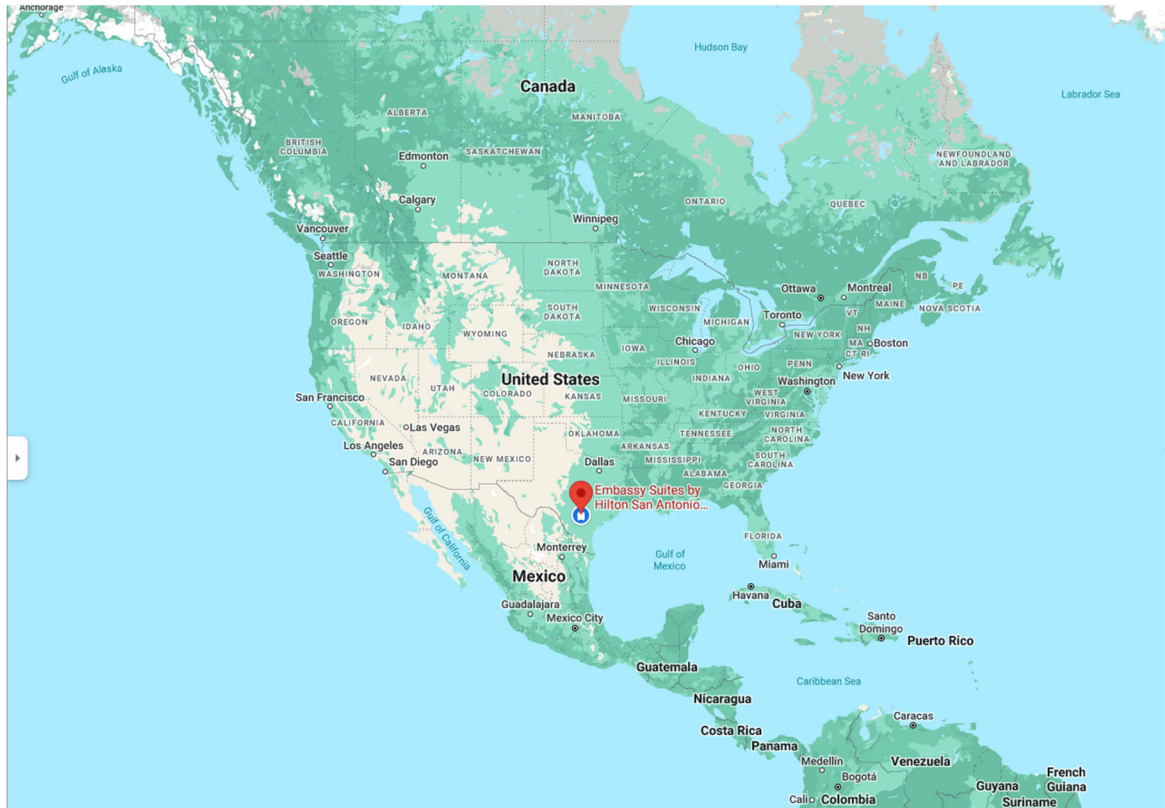
website:

<https://www.hilton.com/en/hotels/sateses-embassy-suites-san-antonio-riverwalk-downtown/>



Location of Embassy Suites by Hilton San Antonio Riverwalk Downtown

<https://maps.app.goo.gl/x9bzsREThfEaJLgD7>





Accommodations

Embassy Suites by Hilton San Antonio Riverwalk Downtown, Texas, US

Location: 125 E. Houston Street, San Antonio, Texas, 78205, USA

website:

<https://www.hilton.com/en/hotels/sateses-embassy-suites-san-antonio-riverwalk-downtown/>

Rooms of the Embassy Suites by Hilton San Antonio Riverwalk Downtown at special rate of USD 229 per night (included full/hot breakfast at hotel restaurant) has been available for conference participants between May 12-16, 2024. The reservation cut off date is April 28, 2024; after this date the hotel will only be able to offer this rate based upon availability.

- Visit this website for reservation at special rate or call reservations at +1-800-362-2779 and reference the special rate code of 915.

<https://www.hilton.com/en/book/reservation/deeplink/?ctyhocn=SATESES&groupCode=CES915&arrivaldate=2024-05-12&departuredate=2024-05-17&cid=OM,WW,HILTONLINK,EN,DirectLink&fromId=HILTONLINKDIRECT>

* Please make reservations as early as possible if you need. These will be allocated on a first come first served basis.

** Please be sure to read cancellation policy of the form before application.

IERE Members List (as of May 1, 2024)

Australia	CSIRO		
Canada	Hydro-Québec	Powertech Labs	
China	CEPRI	GPG	NARI
Czech	CEZ		
Finland	Vaisala		
France	Enedis	ENGIE	
Germany	E.ON	EnBW	RWE TI
Hong Kong SAR	CLP		
Indonesia	PLN		
Israel	IEC		
Japan	Chubu EPCO	Chugoku EPCO	CRIEPI
	FEPC	Fuji Electric	Hitachi
	Hokkaido EPCO	Hokuriku EPCO	IHI
	J-POWER	JAPC	Kansai EPCO
	Kyushu EPCO	MHI	Mitsubishi Electric
	NGK	Sumitomo Electric	Shikoku EPCO
	Tohoku EPCO	TEPCO	TOSHIBA
Malaysia	TNB		
Mexico	INEEL	Prolec GE	
Netherlands	TenneT		
Norway	SINTEF		
Pakistan	Karachi Electric		
Philippines	APC	MERALCO	
Singapore	SPPA		
South Africa	Eskom	PIESA	
South Korea	Hyundai Electric	KEPCO	KERI
	KOMIPO	KOWEPO	LS Electric
Spain	NATURGY		
Taiwan	TPC		
US	EPRI	SwRI	



About IERE

IERE is an organization for exchanging electricity and energy related cutting-edge technologies and R&D information among its members from the electricity and energy supply industry, equipment provider businesses, academic research, government, etc. This unique platform is of great help for executives, senior managers, engineers, and researchers who are responsible for R&D and solutions. It is a worldwide, non-profit organization, established as “International Electric Research Exchange” in 1968.

<https://www.iere.jp>

About SwRI

Southwest Research Institute (SwRI), headquartered in San Antonio, Texas, is an independent and nonprofit applied research and development (R&D) organization. Founded in 1947 by oil businessman Tom Slick, it provides contract research and development services to government and industrial clients.

SwRI’s core values are rooted in a commitment to the mission statement of benefiting government, industry, and the public through innovative science and technology. The core values start with all employees and extend to clients and its impact in the greater community through integrity, innovation, people and stewardship.

Integrity

Fulfilling the mission and serving clients with excellence, honesty, and accountability.

Innovation

Solving problems and creating value with novel ideas and multidisciplinary collaborations.

People

Fostering an employee-centric culture in a safe, inclusive, healthy, and supportive workplace.

Stewardship

Caring for communities and protecting the environment now and for the future.

<https://www.swri.org/>

IERE Central Office
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<https://www.iere.jp>